

New South African Arachnida.

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With 9 Text-figures.

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INTRODUCTION.

THE miscellaneous assembly of new Arachnids described in this paper are all in the Albany Museum, except when otherwise stated. Perhaps the most noteworthy are the small marine spiders taken by the Rev. N. Abraham at Muizenberg, near Cape Town (*Muizenbergia abrahami* and *Erigonopsis littoralis*), a discovery of some interest seeing that previously only one marine genus, viz., *Desis*, had been known from South Africa. Whether their occurrence on our coast has any special zoo-geographical importance it is impossible to decide at present, as little or nothing is known of the Arachnid fauna of other shores; in any case it seems very probable that quite a new field awaits exploration on the coasts of the southern hemisphere, in worm-tubes and similar habitats between tide-marks.

Some of the descriptions are based on material which has been kindly lent to me by the authorities of the British Museum, London, and of the Natal Museum, Pietermaritzburg; for this courtesy I am especially indebted to Mr. A. S. Hirst, the Arachnologist of the British Museum, and to Dr. E. Warren, the Director of the Natal Museum.

SYSTEMATIC ACCOUNT.

ORDER ARANEÆ.

Fam. AGELENIDÆ.

Sub-fam. AGELENINÆ.

* Group *Cryphœceæ*.Genus *MUIZENBERGIA gen. nov.*

This new genus is at once distinguished from any known genus of this group through the position of the tracheal

stigma, which is situated about midway between the genital opening and the base of the inferior spinners. The chelicerae have two teeth on each side of the fang-groove. According to Mⁿ. Simon's¹ key to the genera, *Muizenbergia* should be placed near to *Cicurina Menge*.

Muizenbergia abrahami *sp. nov.* Text-fig. 1, A-G.

The types of this species, a single adult male and a somewhat shrivelled female, were collected at Muizenberg, near Cape Town, in September, 1913, by the Rev. N. Abraham, who presented them to the Albany Museum. Mr. Abraham found them when searching for *Desis*, in the interspaces of the calcareous masses built up by marine annelids; they are, therefore, marine spiders, probably resembling *Desis* in habit.

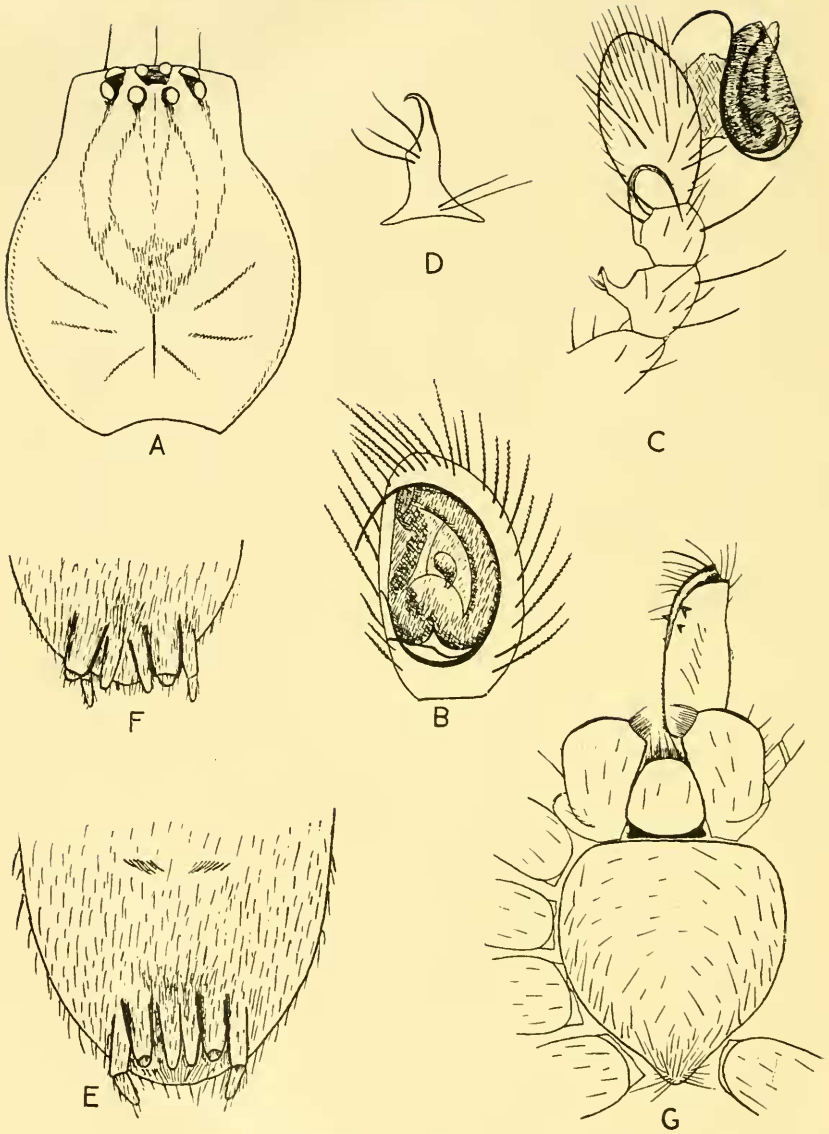
Colour.—Chelicerae and anterior portion of carapace castaneous; hinder portion of carapace pale brown, like the legs and sternum; distal segments of legs more deeply coloured than the basal segments; on the cephalic portion of the carapace there is some slight infuscation, which is only strongly pronounced around the eyes. Abdomen uniformly dull dirty grey.

Carapace.—Longer than wide, the cephalic region fairly strongly convex, gradually becoming much flatter in the thoracic region; these two regions are not sharply separated though their junction is marked on the margin by an obtuse angle. Anteriorly the carapace is squarish, the clypeus being very wide and very low; the distance from an anterior lateral eye to the anterior margin of the carapace is less than the long diameter of the eye. Fovea long and very narrow.

Ocular Area.—Nearly three times as broad as long. Anterior row straight, posterior row slightly procurved. Antero-medians smallest, but not very small, a little nearer to the antero-laterals than to each other. Eyes of posterior row subequally spaced. The laterals of each side very close

¹ Simon, Eugène, 'Histoire Naturelle des Araignés,' tome ii, p. 266. Paris, 1897.

TEXT-FIG. 1.



Muizenbergia abrahami sp. nov.

- A. Carapace of male. $\times 40$. B. Tarsus of male palp with bulb in situ. $\times 75$.
 C. Male palp with bulb of tarsus dislodged. $\times 55$. D. Process of the patella
 of the male palp. $\times 185$. E. Posterior half of abdomen of male in ventral
 view showing spinners and tracheal stigma. $\times 40$. F. Spinners of female.
 $\times 25$. G. Ventral view of sternum, labium, coxae of appendages, and one
 chelicera of the male. $\times 40$.

together. Quadrilateral formed by the four median eyes broader behind than in front, and the posterior breadth exceeds its length.

Chelicerae.—Elongated, a little dilated in the basal half, projecting obliquely forwards. Fang strongly curved, reaching backwards nearly half the length of the chelicera; on each side of the fang-groove there are two teeth, of which the distal one is large, sharply pointed, and triangular, the more proximal one small.

Pedipalp of Male.—Both the patella and tibia carry a strongly projecting process. That of the tibia, which is the longer, is a tapering cylindrical process, strongly curved backwards and ending in a point; that of the patella arises from a broad base and is expanded over half of its length, the expanded portion carrying a group of three bristles, distally to which the process suddenly narrows and eventually ends in a claw-like hook. The tarsus is oval and elongated, but not twice as long as broad; the distal end of the bulb is not far from the apex of the tarsus. Numerous long, plumose, bristly hairs occur on the tarsus.

Legs.—All the hairs, bristles, and spines which invest the legs and the palps are finely plumose. None of the tarsi are spined. The first metatarsus and tibia in the female are quite without spines (in male specimen damaged). The second metatarsus has a pair of long spines, near the apex, and the third metatarsus has two pairs of long spines below; the third and fourth tibiae and fourth metatarsus are beset with a number of long and strong spines. The hairs on the legs are not very densely arranged. The paired tarsal claws of the first leg in the male have nine teeth each, the more basal teeth being minute; the unpaired claw has two teeth, but that of the female has only one. The unpaired claw of the fourth leg of the male has three teeth, that of the female only two.

Labium.—About as broad as long; broadest near the base and tapering gradually towards the anterior margin, which is broadly rounded and carries four long bristles; it

reaches about as far as two-thirds of the distance along the maxillæ.

Sternum.—Only a trifle longer than wide, broadly truncate in front and narrowing to a point posteriorly between the hind coxæ, which are completely separated thereby. It is broadest opposite the coxæ of the second legs.

Abdomen.—Elongated, covered with soft, slender, plumose hairs, all backwardly directed. On its ventral surface the tracheal stigma is placed far forwards, being situated only very slightly posterior to the mid-point between the genital aperture and the bases of the inferior spinners.¹

Spinners.—Inferior spinners widely separated, about twice their own width apart. Superior spinners with the apical segment about half the length of the basal one. Colulus absent. The median and superior spinners arise only very slightly posterior to the inferior spinners, especially in the male, where the whole six are arranged almost in a transverse line; in the female the arrangement is roughly in two transverse lines.

Total length.—Adult male 3·5 mm.

This genus in its spinner arrangement approaches the group *Hahniinæ* and will probably prove to be closely related to some of the little-known genera of that group. The tibial process of the male palp is very like that figured by Simon² for *Hahnia oreophila* *E. Sim.* The position of the tracheal stigma is also apparently an extreme condition of a tendency obtaining in various genera of this group. I have placed *Muizenbergia* provisionally in the group

¹ Since writing the above, I have examined a large female example from St. James, near Cape Town (coll. J. H. Power). This clearly shows that the median tracheal stigma is double, the actual openings being connected by a short transverse furrow. The tufts of hairs shown on E, text-fig. 1, mark the positions of these openings. Further, the lateral eyes of each side are slightly raised on an obliquely disposed prominence.

Op. cit., p. 273.

Cryphœcæ mainly on account of the dentition of the chelicerae; probably the separation of the two groups is artificial. Whether this genus can be regarded as a direct derivative of the South African terrestrial fauna, or whether, like *Desis*, its allies are widespread over the shores of the southern hemisphere, cannot be stated at present; it does not seem to be closely related to the various known littoral species recorded by Mr. H. R. Hogg.¹

Fam. ARGIOPIDÆ.

Sub-fam. LINYPHINÆ.

Genus ERIGONOPSIS *gen. nov.*

This generic name is proposed for the reception of the species hereafter described, which combines the characters of various members included in Simon's world-wide group *Erigoneæ*, but does not agree entirely with any one of them, and in some respects approaches the group *Linyphiae*. The characters of the male palp will probably prove sufficient to differentiate this from any other known genus. Other characters are: carapace of male simple, precisely like that of the female; no trace of fovea or median sulcus on carapace; length of quadrilateral formed by the four median eyes slightly greater than its hind width; posterior median eyes very slightly nearer to each other than to the posterior laterals; sternum with a rather broad posterior prolongation, separating the bases of the fourth legs from each other, followed, posteriorly to the coxæ, by a small flat quadrangular piece; abdomen without scute or indurated area; female epigyne comparatively simple; female palp without tarsal claws, the maxillæ not very broad even in the male (more or less intermediate between *Erigone* and *Linyphia*); chelicerae with four teeth on the anterior margin of the fang-groove and three on the posterior margin in both sexes; tarsus of first leg

¹ Hogg, H. R.. "Subantarctic Islands of New Zealand." Article IX. Wellington, N.Z., 1909; "Some Falkland Island Spiders," "Proc. Zool. Soc.," 1913, p. 37.

very slightly longer than the metatarsus or subequal thereto, and the metatarsus very slightly shorter than the tibia.

Erigonopsis littoralis *sp. nov.* Text-fig. 2, A-H.

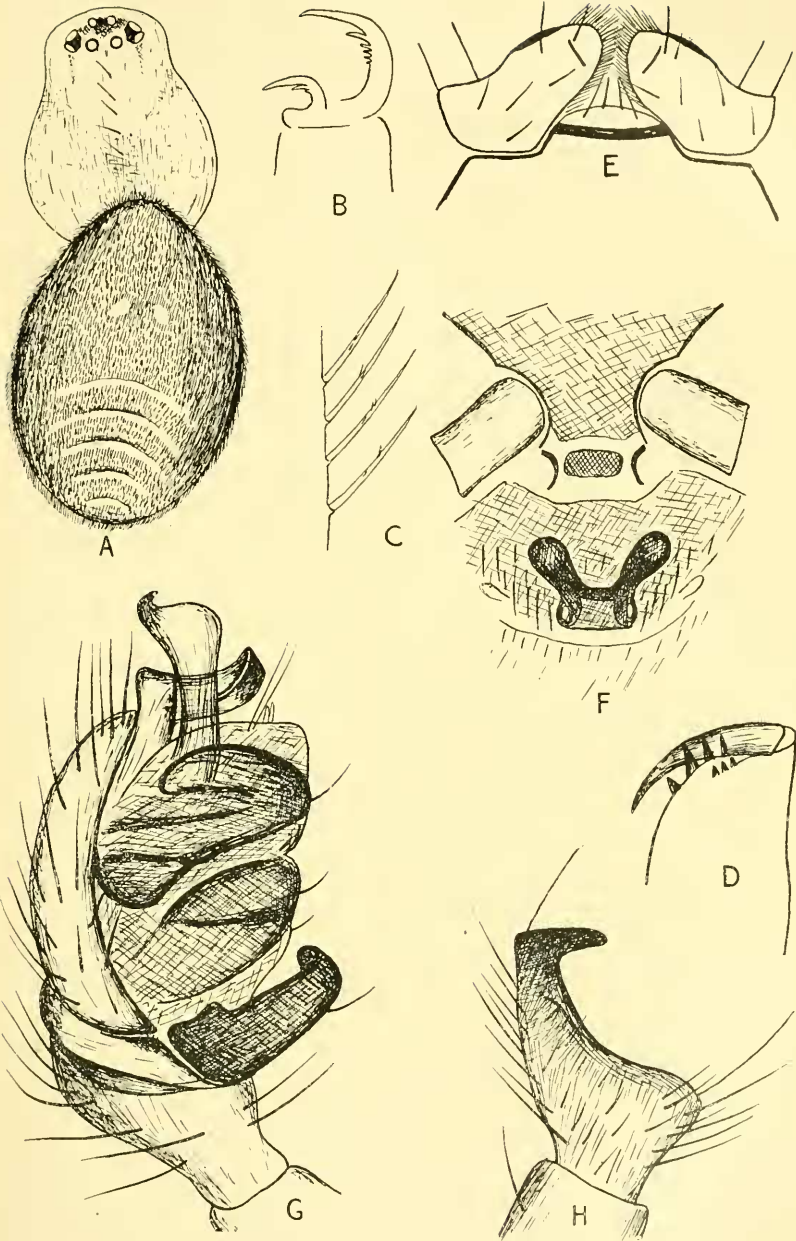
The types of this species are one adult male and several adult females taken at Muizenberg, near Cape Town, by the Rev. N. Abraham in September, 1914. The habitat is the same as that of *Muizenbergia abrahami* *sp. nov.*

Colour.—Carapace, sternum, and appendages brownish, without strong infuscation except around the eyes: the carapace and sternum are lightly infuscated, more especially so about the middle of the carapace. The skin of the abdomen is for the most part infuscated and is covered with black rather bristly hairs; on the hinder half of the abdomen are five pale transverse stripes dorsally, and there is a pair of pale spots about midway between the anterior stripe and the front margin of the abdomen.

Carapace.—Narrowed anteriorly, the front margin broadly rounded; cephalic area fairly strongly convex, gradually passing into the slightly convex thoracic portion, the boundary between the cephalic and thoracic portions of the carapace being very ill-defined both at the margin and elsewhere. Clypens vertical but not greatly elevated, the anterior lateral eyes being about three diameters distant from the anterior margin of the carapace. Anterior margins of anterior row of eyes in a distinctly recurved line; posterior row only slightly procurved; anterior medians smallest, but not very small, nearer to each other than to the anterior laterals. Along the mid-line of the carapace in its cephalic portion there are four or five weak bristles, and a few stiffish hairs occur on the ocular area, but none on the margin of the carapace.

Chelicerae.—Fairly stout, directed vertically downwards, without spines at the sides and without basal spot; fang strong and rather short; anterior margin of fang-groove carrying four teeth, of which the middle ones are strongest; the posterior margin with three small teeth.

TEXT-FIG. 2.



Erigonopsis littoralis sp. nov.

- A. Dorsal view of carapace and abdomen. $\times 30$. B. Tarsal claws of first leg. $\times 375$. C. Barbed hairs on margin of fourth tarsus. $\times 185$. D. Dentition of chelicerae. $\times 100$. E. Maxillae, labium, and anterior part of sternum. $\times 90$. F. Posterior part of sternum, coxae of fourth pair of legs, and epigyne. $\times 90$. G. Distal portion of male palp. $\times 200$. H. Tibia of same showing the apophysis. $\times 250$.

Legs.—Coxæ I and IV of equal length. Metatarsus IV longer than the tarsus. Apart from a few long spiniform setæ on the femora and tibiæ, the legs are spineless; there are a few long setiform spines on the distal segments of the palps. The legs are clothed with short stiff setæ; most of these are simple, but on the tarsus, and to a less extent on the metatarsus, there are some long stiff setæ, each carrying two or three lateral barbules, usually situated on one side of the hair about the middle of its length. On tarsus IV the stout feathered hairs are arranged in longitudinal rows, about ten in a row. The elongated so-called auditory hair on the fourth metatarsus is present. On tibia IV dorsally there are two projecting hairs, the distal one longer. Onychium present. Paired claws of the first tarsus with only five teeth, the distal one longest, the others much smaller and gradually decreasing in size towards the base; the median claw is fairly long and carries two teeth, the basal one of which is very minute and arises from the base of the larger one. On the claws of the fourth tarsus the teeth are still weaker, the inferior claw being drawn out to a long fine point and carrying only one weak tooth.

Sternum.—Broader than long, quite fused with the labium.

Labium.—Very broad, carrying four bristles anteriorly; there is a strongly thickened slightly concave border anteriorly. The maxillæ have the long axis very obliquely inclined.

Palp.—Male palp short, the femur being about twice as long as the patella, and their conjoint length about equal to the distance from the base of the tibia to the end of the conductor of the style of the bulbal organ. The end of the conductor somewhat resembles a scorpion's vesicle (sting) in shape; immediately beyond the distal extremity of the tarsus the style is bent at right-angles on itself, its distal portion continuing to the apex as a broad slightly curved lamina. Tibial apophysis not bifurcated and not large. External branch of the tarsus (paracymbium) slightly arched, but no spines nor hairs occur on the concavity.

Total length.—Female $2\frac{1}{4}$ mm. Male $1\frac{3}{4}$ mm.

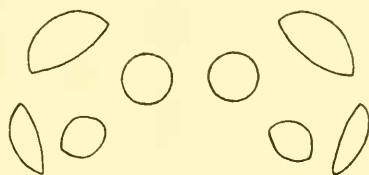
Various members of this group of Argiopidae are known to live in marshes and on the sides of streams, but no marine forms have been hitherto recorded.

Fam. CTENIZIDÆ.

Pelmatorycter dreyeri *sp. nov.* Text-fig. 3.

The type consists of a single adult male from Bloemfontein, presented to the Albany Museum by Dr. T. F. Dreyer, in August, 1914. The species is related to *P. nigriceps*¹ Purcell, from Johannesburg, but differs therefrom in the

TEXT-FIG. 3.



Pelmatorycter dreyeri *sp. nov.*
Eyes of male. $\times 45$.

ocular arrangement, in the dentition of the claws of the fourth leg, and in some minor points.

Ocular area.—Wider behind than in front, the anterior row of eyes strongly procurved, the laterals much larger than the medians, the long diameter of the former being quite one and two-third times the diameter of the latter. Posterior laterals decidedly longer than the anterior medians, but shorter than the anterior laterals.

Chelicerae.—With seven teeth on the fang-groove.

Pedipalps.—Near the base of the tibia on its inner side is a spine.

Legs.—Tarsus II, without spines; III with four spines on its anterior side, two or three postero-dorsally situated, and one on the posterior side ventrally situated; IV with no spines on its posterior side. Posterior claw of tarsus IV with

¹ Purcell, W. F., 'Trans. South African Philosophical Society,' vol. xi, p. 358.

one tooth only in the outer row and four in the inner row; anterior claw with three small ones in the outer row and four large ones in the inner row. Metatarsus I equal in length to the distance from the centre of the fovea to the anterior margin of the carapace. Patella IV without an apical spine inferiorly. The distal group of spines on femur IV, at its upper outer edge, is composed mostly of weak spines; there are only very few short, fairly stout, spines.

Abdomen.—With a few, rather strong bristles near the base above.

Posterior sternal sigilla.—Not very clearly defined, but apparently rather more than a length apart, and about half a length distant from the sternal margin.

Posterior spinners.—Apical segment a trifle shorter than the penultimate segment.

Measurements.—Total length 18.5 mm., length of carapace 5.5 mm., width of carapace 4.4 mm., length of metatarsus of first leg 3.5 mm.

A female specimen taken at Bloemfontein by Dr. Dreyer, a few days later, presumably belongs to the same species. The characters are detailed below.

Ocular area.—More than twice as broad as long, the posterior row distinctly wider; anterior row with anterior margins moderately procurved, posterior margins in a very lightly procurved line, the medians slightly nearer to the laterals than to each other, their distance apart being distinctly greater than a diameter; posterior row with procurved anterior margin and recurved posterior margin, the laterals oblique and elongated, much longer than the medians and as long as the anterior laterals, posterior medians nearer to the posterior laterals than to the anterior medians; distance between the laterals of each side about one-third the length of the posterior laterals.

Posterior sternal sigilla.—About half a length apart and almost a length distant from the sternal margin.

Chelicerae.—The inner dental series comprises eight teeth.

Pedipalps.—Coxa with five teeth on the inferior surface situated far forwards. Tibia with four apical spines inferiorly, also four on the anterior surface below, but none on the posterior surface. Tarsus with two spines not far from the apex inferiorly, and a longer one on each side near the base.

Legs.—Tarsi and metatarsi of first two pairs of legs scopulate to the base (on the second metatarsus the scopula is absent on the posterior side in its basal half). Tarsus I without spines, excepting one near the apex inferiorly; II with one or two spines inferiorly on the posterior side; III with a row of six spines postero-dorsally, of three antero-dorsally, also about seven antero-inferiorly situated; IV strongly aculeate on the anterior surface and with a number of spines on the posterior surface in its distal half. Metatarsus I with one or three apical spines below, and two or three along the inferior surface; II with three apical spines below and two along the inferior surface; III numerous spined on both anterior and posterior surfaces superiorly, and with four weak spines on the inferior surface, in addition to those at the apex, which are long and strong; IV with numerous spines inferiorly, mostly situated on the anterior side, superiorly with two spines on the posterior side. Tibia I and II each without distinct spines below except one at the apex; III without spines at the apex inferiorly, a supero-anterior band of seven spines, also seven dorsal spines, and two near the supero-posterior edge distally; IV with a single apical spine inferiorly, and with one spine or none on the postero-dorsal edge. Patella III covered with short, stout spines on the anterior surface, the dorsal surface with two stout spines near the posterior edge; IV without spinules on its anterior surface, except two or three immediately at the base of the segment. Femur IV with a dense group of short, strong spines anteriorly at the apex and dorsally. Tarsal claws of first leg with four teeth in the outer rows, and five or six in the inner rows; anterior claw of fourth leg with only one small distal tooth; the posterior claw with one or two distal teeth and one at the base, also a very minute

second basal tooth. Coxa III with a dense tuft of stiffish setae on the postero-ventral border.

Colour.—For the most part castaneous above, chelicerae blackish, patellae and more distal segments of first two pairs of legs and of palps pale brown; carapace pallid in its hinder portion at the sides. Abdomen pale except over the median area above, where it is infuscated.

Measurements.—Total length 23.5 mm., length of carapace 8.5 mm., breadth of same 5.5 mm.

According to Dr. Dreyer, the nest has two long blind side passages leading into the central tube one on each side in the upper half of its length; the upper part of the tube projects a little above the surface of the ground, and the distal end is folded inwards, thus closing the entrance to the nest.

Bessia minor Hewitt. Text-fig. 4.

Bessia minor Hewitt. Records, Albany Museum, vol. ii, p. 469, 1913.

An adult male of this species was taken at Alicedale by Mr. F. Cruden on March 12th, 1914, and a description of it is here given.

Carapace.—As long as the metatarsus and tarsus of the first leg; the lateral margins fringed with strong bristles, and the abdomen also is bristly over its median area superiorly. Fovea lightly procurved.

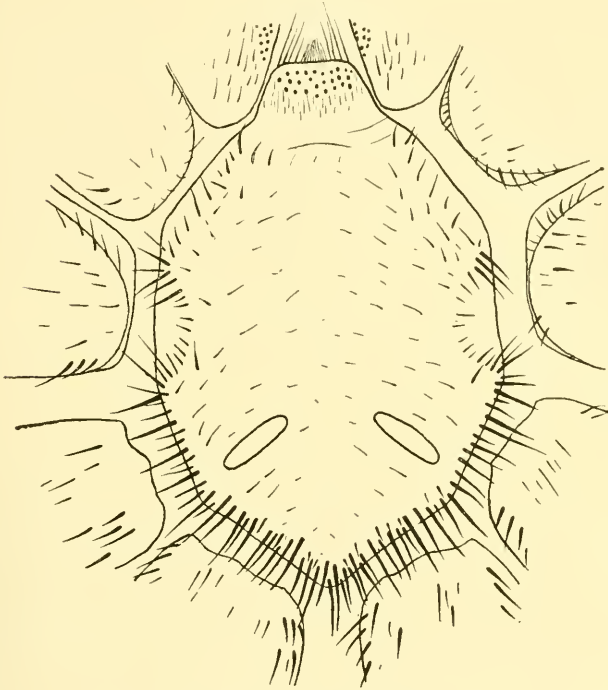
Chelicerae.—Dentition somewhat similar to that of the female, the teeth not arranged in continuous well-defined rows; the larger teeth are roughly arranged in a double series—the inner of which is weaker—in the middle of the group, and a single series at each end.

Pedipalp.—Resembling that of a *Spiroctenus*. The tarsus has numerous short spines distally above; the tibia has long spines below; at the base of the coxa inferiorly is a patch of cusps.

Legs.—Tarsi not spined, all of them scopulate on the sides, the fourth tarsus only weakly so; paired claws with a single spirally curved row of numerous long teeth as in

Spiroctenus. Metatarsus I longer than the tibia, slightly scopulate in its apical third, slightly but distinctly bowed; II with several scopular hairs near the apex; III and IV not scopulate. Apical tubercle of tibia I with a fairly long and

TEXT-FIG. 4.

*Bessia minor* Hewitt.

Sternum, labium, and basal parts of the appendage of the male.
× 18.

stout spur at its apex, and a slightly shorter and less stout spur on its base externally; the proximal tubercle also bears a spur and is situated rather less than a quarter of the length of the segment from the apical border. Anterior surface of patella III with a row of three spines superiorly and two longer ones distally below. All the femora are spined above.

Labium.—With about twenty-four cusps on its anterior half.

Sternum.—Posterior sigilla elongated, about one and a half diameters apart and about half a diameter distant from the sternal margin. At the margin of the sternum opposite the base of the second leg there is a deep circular depression in which is situated the second sigillum; a similar depression also occurs in the female, but is not so noticeable, as the setæ which fringe its margin are not so strong as in the male. Sternal margin fringed with strong bristles, especially posteriorly.

Posterior spinners.—Apical segment about three-quarters the length of the penultimate segment.

Measurements.—Total length 15·2 mm., length of carapace 6·5 mm., breadth of same 4·8 mm., length of first metatarsus 4 mm., of fourth metatarsus 5·8 mm.

Bessia fossoria Poc.

Bessia fossoria Poc. Ann. Mag. Nat. Hist., vol. vii, 6, p. 320, 1900.

I have examined the type, which is very immature, and have now no doubt but that the much larger specimen from Redhouse, referred to in a previous paper,¹ belongs to this species. The dentition of the paired tarsal claws was incorrectly described by Pocock, for the inner distal row is represented by two or three minute teeth on each claw. Moreover the tarsus of the first leg and the distal half of the metatarsus is rather strongly scopulate, the tarsus of the second leg is scopulate at the sides, but the third and fourth tarsi are not scopulate. The teeth on the chelicerae constitute a single row, but the line is irregular, not straight.

The genus is evidently very closely related to *Spirocetus* *Sim.*

¹ Hewitt, J., 'Records, Albany Museum,' vol. ii, p. 471, 1913.

Spiroctenus armatus Hewitt.

Spiroctenus armatus Hewitt, Records, Albany Museum, vol. ii,
p. 467, 1913.

In drawing up the description of this species the following characters were accidentally omitted.

Colour.—Carapace and legs reddish brown, palps pale brown; abdomen pale with ill-defined dark markings above; ventral surfaces pale.

Posterior sternal sigilla.—Elongated, oval, about one and a half diameters apart and about half a diameter distant from the sternal margin.

Measurements.—Total length 15 mm.; length of carapace 6·4 mm.; breadth of same 5·1 mm.; length of metatarsus of first leg 4·2 mm., of fourth leg 6·2 mm.

Acanthodon abrahami (Hewitt).

Gorgyrella abrahami Hewitt, Records, Albany Museum, vol. ii,
p. 473, 1913.

I now prefer to place this species under the genus *Acanthodon*, although formerly I doubtfully referred it to *Gorgyrella*. It is probably closely related to *A. ochreolum Poc.*, of which only the male is known. The male of *abrahami* seems to differ from that of *ochreolum* in the closer approximation of the frontal eyes and in the less strongly bent first metatarsus, but until more Jansenville material is available for comparison the specific distinction of *abrahami* should be held somewhat doubtful. Two adult males of *abrahami* were taken by Mr. F. Cruden at Alicedale on February 15th, 1914, and I here give a description of the sex.

Frontal eyes quite separated, about one-third of a diameter, or slightly less, apart; the quadrangle formed by the frontal and anterior median eyes wider behind, the medians large, about three-fifths to three-quarters of a diameter apart; hind margins of posterior row about in a straight line, the medians two to two and a half diameters apart and a diameter or slightly more distant from the laterals.

Tarsi of all the legs scopulate below throughout their length, the first tarsus being only quite thinly scopulate, the fourth without setae along its middle. Tarsal claws of first leg with three teeth, of fourth leg with two teeth and a third tooth may or may not be just indicated. First metatarsus slightly bowed, with two spines at the apex inferiorly and three along the postero-inferior edge, but none along the antero-inferior edge. First tibia shorter than the metatarsus, with four spines along the postero-inferior edge, with the usual pair of tubercles near the apex, the more proximal one being distant from the apex less than one-sixth the length of the segment. Band of spinules on anterior surface of patella IV stretching two-fifths to one half of the length of the segment and comprising only about eight to ten spinules; III has two to four spines along the distal edge anteriorly, and two to nine on the anterior surface, but only one on the dorsal surface, in addition to one or two on the distal edge.

Tibia of pedipalp barely one and two-third times as long as deep, the band of spines bordering the excavation complete, in three rows proximally, but elsewhere in a single row, except at the distal end; altogether there are nineteen to twenty-four such spines. Tarsus of pedipalp with one long spine at the apex superiorly and one or two weaker ones, the distal inferior lobe on the posterior side rather strongly projecting. Process of palpal organ comparatively short, flattened, and twisted.

Measurements.—Total length 12·5 mm., length of carapace 4·5 mm., breadth of same 3·5 mm., length of tibia of first leg 2·75 mm.

Acanthodon ochreolum Poc.

Acanthodon ochreolum Poc., Ann. Mag. Nat. Hist., 7, x, p. 9, 1902.

This species is probably the same as either *Gorgyrella schreineri* Purcell, or *G. abrahami* Hewitt, for it has three pairs of sternal sigilla.

The following notes on the type specimen will supplement Pocock's rather incomplete description.

Frontal eyes quite separate from each other, about half a diameter or a trifle more apart. The quadrangle formed by the frontal and anterior median eyes is appreciably wider behind. Hind margins of posterior row of eyes in a procurved line. Posterior median eyes three to three and a half diameters apart.

Tarsus of palp with one rather long stout spine at the apex dorsally, and several much weaker ones. Pocock's figure of the tibia of the palp is quite inaccurate in respect to the spinulation of the excavation; the spinules are not arranged in a single row throughout, and are much more numerous than represented in the figure; distally they occupy two or three rows, and proximally the spinules are considerably longer than elsewhere.

All the tarsi are scopulate to the base, the fourth being without spiniform setae mesially below. Tarsal claws without a comb of teeth, the first having only one large tooth and the fourth one or two. The first tibia has four spines along its outer inferior edge, but none otherwise situated, apart from the two large tubercles.

The inner dental series of the chelicerae comprises five large teeth.

The first pair of sternal sigilla is near to the sternal margin.

Acanthodon hamiltoni Poc.

Acanthodon hamiltoni Poc., Ann. Mag. Nat. Hist., 7, x, p. 320, 1902.

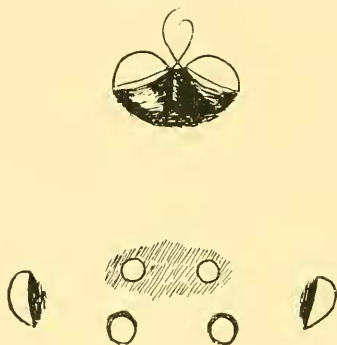
The type of this species is without doubt very juvenile.

The inner dental series comprises five strong teeth and a few small ones basally situated. The coxae of the legs are without spinules, and along the posterior edge of the third coxa inferiorly is a strip of moderately fine hairs. The second tibia has a row of eight spines on its anterior side. The band of short strong spines on the anterior surface of the fourth patella extends two-thirds of the distance along the segment. The frontal eyes are very close together; the ocular tubercle is deeply grooved above.

Acanthodon grandis sp. nov. Text-fig. 5.

This may be the female of *A. pectinipalpis* Purc. (Annals S. Afr. Mus., vol. iii, p. 87) described from Zululand, but I think it is probably distinct on account of the wider separation of the frontal eyes, those of *pectinipalpis* being described as very close together. It is related to a species described by me¹ from Newington, Transvaal, under the name of *Ctenolophus transvaalensis*, but differs in that the third coxa is clothed inferiorly with stout bristles, not spinules, and in other respects also.

TEXT-FIG. 5.



Acanthodon grandis sp. nov.
The eyes of the female. $\times 16$.

The type consists of a single adult female in the collection of the Natal Museum from Umfolosi, Zululand (F. Toppin coll. 1905).

Colour.—Upper surface of appendages and carapace castaneous, the legs with a reddish tinge. Ventral surfaces paler; sternum and coxæ of last two pairs of legs yellowish-brown.

Carapace.—As long as the tibia, metatarsus and half of the tarsus of the fourth leg, or the patella, tibia and three-fifths of the metatarsus of the first leg. Ocular area only slightly wider than long, its width subequal to the length

¹ Hewitt, John, 'Records, Albany Museum,' vol. ii, p. 412, 1913.

of metatarsus I, its length almost two-fifths of the distance from the anterior margin of the carapace to the centre of the fovea. Area formed by the frontal and anterior median eyes slightly wider in front, the medians small, about two diameters apart, the frontals large, about one-third of a diameter apart and situated on a common tubercle which is deeply grooved above. Posterior row about equally spaced, the area formed by the four medians appreciably wider behind; posterior laterals large, the medians considerably larger than the anterior medians, the hind margins in a slightly procurved line.

Legs.—Metatarsus III with three long weak spines below and three stronger ones at the apex inferiorly; IV with six or seven spines along the lower surface and three at the apex inferiorly. Band of spines on anterior surface of tibia I reaching to the base; of II also reaching to the base and including about twenty-two spines; IV with two inferior apical spines and one weak one on the lower surface. Band of spines along anterior surface of patella III including about thirty spines, of which about seven are on the distal edge; on the posterior distal edge there are five spines; IV with a band of short stout spines stretching the whole length of the anterior surface. Coxæ of legs without spinules below, the third having a dense patch of short coarse bristles or weak spines along its posterior border ventrally.

Labium.—With two apical teeth.

Chelicerae.—Inner row of teeth on fang-groove including five large teeth; the outer group without any large teeth.

Sternum.—Three pairs of sigilla, the third pair small and not so conspicuous as the preceding pairs; first pair sub-marginal, second pair their own length distant from the sternal margin.

Measurements.—Total length 25 mm.; length of carapace 10.2 mm., width of same 9 mm.; length of tibia of first leg 4.25 mm. This is the largest species of *Acanthodon* known to me (excluding *Gorgyrella namaquensis* and *G. schreineri*, but *Gorgyrella* is hardly separable from *Acanthodon*).

Idiops pretoriæ (Poc.).

Acanthodon pretoriæ Poc., Ann. Mag. Nat. Hist., vii, 1, p. 319, 1898.

To the description given by Mr. Pocock I can add the following notes, after examination of the type male :

Chelicerae with seven strong teeth in the inner row and four in the outer row ; process of palpal organ strongly flattened throughout and twisted ; the excavation on the tibia of the palp very shallow and not bordered by spines ; band of spinules on anterior side of patella IV stretching five-sixths of the length of the segment and including about thirty short spines ; patella III has a continuous strip of spinules anteriorly including about thirteen as well as four on the distal edge ; frontal eyes one-quarter to one-third of a diameter apart, the anterior medians very large, the area formed by the frontal and anterior median eyes much broader behind, posterior medians very much smaller ; posterior margins of posterior row of eyes slightly recurved, the anterior margins slightly procurved ; the posterior medians about three diameters distant from the posterior laterals, which latter are a little elongated but not greatly so.

Idiops astutus sp. nov. Text-fig. 6.

The type consists of a single adult male taken at Bulawayo, November 15th, 1913, by Mr. G. Arnold, who writes of it " hunting insects under the electric lights, waiting for those that fall."

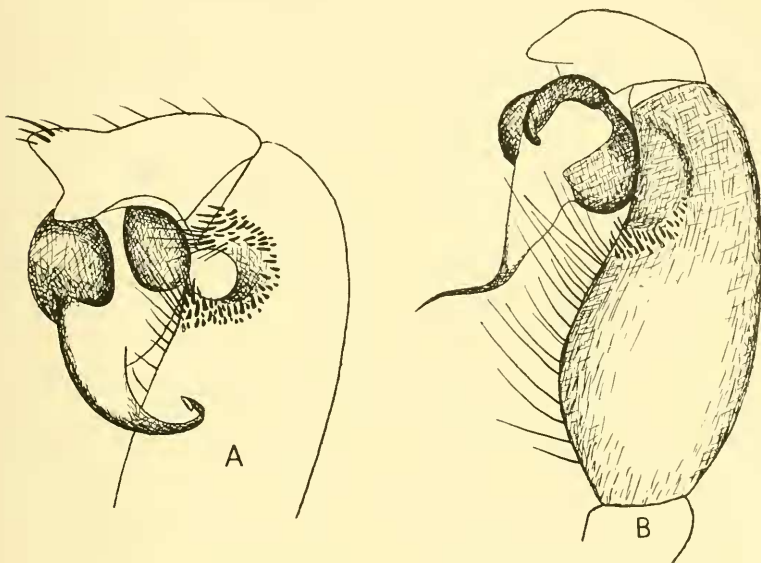
This species can at once be distinguished from *I. arnoldi* Hewitt,¹ which it somewhat resembles, and which also is believed to occur at Bulawayo, through the total absence of a scopula on the fourth tarsus, whereas *arnoldi* has a broad scopula on the swollen fourth tarsus.

Colour.—Upper surfaces brownish-black, lower surfaces somewhat paler, the sternum and coxæ of the third and fourth legs, the genital sternite, lung opercula and spinnerets being pale yellowish-brown.

¹ 'Records, Albany Museum,' vol. iii, p. 21, 1914.

Carapace.—Broad and depressed, its length equal to that of the fourth metatarsus together with two-thirds of the tarsus. Surface coarsely granulated, except on the ocular area and lateral thereto. Ocular area very slightly wider than long, its length slightly less than one-third of the distance from the anterior margin of the carapace to the

TEXT-FIG. 6.



A. *Idiops astutus* sp. nov. B. *I. arnoldi* Hewitt.
Distal portions of male palps. A \times 14. B \times 18.

centre of the fovea; frontal eyes quite separated, about one and a quarter diameters apart. Area formed by frontal and anterior median eyes very slightly wider in front, its length being only slightly greater than its anterior width; the medians about half a diameter apart and much larger than the frontals. Posterior margins of posterior row in a procurved line, the medians about two to two and a half diameters apart and about a diameter distant from the laterals, which are elongated but rather small. Posterior medians

about one-third of a diameter distant from the anterior medians.

Pedipalp.—Tibia slightly more than three times as long as deep, the excavation completely bordered by a band of spines. Tarsus dorsally without spines, except at the apex, where there are several; the apical portion strongly projects upwards (see text-fig. 6, Δ). Process of bulb flattened throughout its length, obliquely truncate at the apex, curved and slightly twisted.

Legs.—Tibia I shorter than the metatarsus, with a pair of tubercles near the distal end inferiorly, the proximal one short and small, the distal one with a large and long black projection; its under-surface without spines along the median area, about ten or eleven along the posterior edge inferiorly, but none on the anterior edge. Metatarsus I distinctly bowed, with seven or eight short spines inferiorly on the posterior side and three or four on the anterior side (including two near the apex). Tarsus I with eight or nine spines on each side, weakly scopulate in its distal third, II and III broadly scopulate from apex to base, IV without trace of scopula and not swollen. Claws of all the tarsi with two basal teeth, the more distal one larger than the other; on tarsus IV the posterior claw of the left leg (missing on right side) carries three teeth, and such is the case on one of the claws on tarsus II. Band of spinules on anterior side of patella IV extending the whole length of the segment; patella III also has a band of short spines along its anterior surface, ending in a row of about five or six longer ones along the distal edge.

Measurements.—Total length 19 mm., length of carapace 8.8 mm., breadth of same 7.8 mm., length of tibia of first leg 5.4 mm., of metatarsus of same 7.4 mm., length of first leg 33.3 mm., of fourth leg 31 mm.

Hermacha mazœna *sp. nov.*

The type is a single female specimen from Mazœ, Mashonaland (J. Darling), in the collection of the British Museum.

Colour.—Almost uniformly pale brown, the abdomen superiorly showing indication of a darker tree-pattern.

Carapace.—Slightly longer than the fourth metatarsus and tarsus together. Ocular area a trifle more than twice as broad as long. Anterior margins of anterior row of eyes in a procurved line; the medians rather small, about three-quarters of a diameter apart. Posterior medians rather small, oval, and widely separated, about three and a half times their long diameter apart, their inner margins about in a line with the outer margins of the anterior medians; posterior laterals about as long as the anterior laterals. Fovea straight.

Chelicerae.—With seven teeth in the inner row below, the distal tooth of the outer group being opposite the fifth tooth of the inner row.

Pedipalps.—Coxae with about sixty teeth arranged in a triangular patch at the base.

Labium.—Quite without apical teeth.

Legs.—Tarsus I with dense undivided scopula, II with scopula divided by a thin median strip of setae, III and IV not definitely scopulate, but carrying a few scopular hairs at the sides, in IV only distally so. Metatarsus I and II scopulate to the base, III and IV not scopulate; I with two spines at the apex below and two or three along the inferior surface, also one or none on the anterior surface. Tibia I with three weak spines at the apex below and two on the inferior surface, also one on the anterior surface superiorly; very slightly exceeding the metatarsus in length.

Posterior Sternal Sigilla.—Elongated, almost touching the sternal margin.

Posterior Spinners.—With the apical and basal segments subequal in length, being about one and three-fifths times the length of the penultimate segment.

Anterior Spinners.—Not widely separated, less than half their own length apart (the abdomen is somewhat contracted, and in fresh specimens the spinners may perhaps be rather more widely separated); moderately long, being about

four-fifths the length of the basal segment of the posterior spinners.

Measurements.—Total length 15.2 mm., length of carapace 5.6 mm., breadth of same 4.5 mm., length of tibia of first leg 2.5 mm.

No species of this genus has previously been recorded from Rhodesia. The described species to which it is most closely allied are probably *H. caudata* *Sim.* from Delagoa Bay, and *H. bicolor* (*Poc.*) [*Brachyheliscus bicolor* *Poc.*] from Durban; the female of the former is unknown, and the latter species is distinguished from *mazœna* in the following characters: ocular area, dentition of chelicerae and of labium, and separation of anterior spinners.

Genus *HERMACHOLA* *gen. nov.*

This name is proposed for the reception of a small species which has many of the characters of the genus *Hermacha* *E. Sim.*, but differs therefrom principally in the form of the male bulbal organ and in the shape of the fovea as hereafter described.

Hermachola grahami *sp. nov.* Text-fig. 7, A-C.

The type is a single adult male example collected at Grahamstown by Mr. F. C. Graham, September 23rd, 1914, who presented it to the Albany Museum.

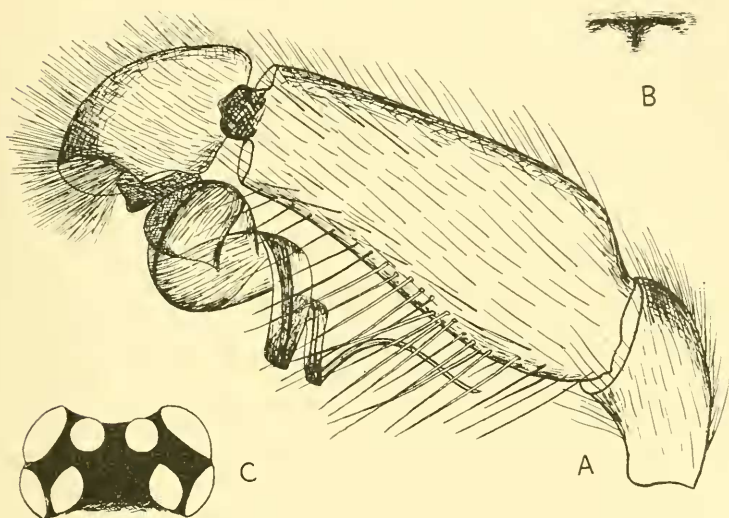
Colour.—Carapace and appendages pale brown, the more distal segments of the first pair of legs with a dull reddish tinge; the hairs which clothe the carapace and appendages are blackish. Abdomen pale dorsally, with a variegated dark pattern. Lower surface pale, but posteriorly just in front of the base of the spinners the abdomen has a dark transverse stripe.

Carapace.—Elongated, about as long as the metatarsus and tarsus of the fourth leg. Fovea transverse at the base, but with a short backwardly directed median extension, which, however, is not so deep as the main portion of the fovea. Near the anterior border of the fovea there are two long spini-

form setæ mesially situated; otherwise no spiniform setæ occur on the carapace except a few on the borders, especially at the postero-lateral corners.

Ocular Area.—Not quite twice as broad as long. Anterior row with their anterior margins strongly procurved, the laterals much larger than the medians or than the postero-laterals. Posterior laterals subcontiguous with the posterior

TEXT-FIG. 7.



Hermachola grahamsi sp. nov.

A. Distal portion of male palp. $\times 55$. B. Fovea. $\times 40$. C. Ocular area. $\times 65$.

medians and with the anterior laterals. Distance of anterior laterals from the margin of the carapace scarcely as much as half of a diameter of an anterior median.

Labium.—With a single small apical tooth.

Chelicerae.—With seven or eight teeth on the inner row below. Anterior surface covered with spiniform setæ which are not elongated; rastellum weak, without spines.

Pedipalps.—Coxa with a small patch of about eighteen small teeth at the base. Femur with two or three weak spines

above; patella without spines. Tibia with numerous elongated spiniform setæ on its ventral surface on the inner side, more strongly developed in the basal half of the segment. Tarsus without spines. Bulb small, process coiled up spirally like a corkscrew; there are two complete coils in addition to the expanded and coiled basal portion which invests the bulb and the narrowed distal portion which also has a strong spiral twist; the process reaches backwards as far as the basal fourth of the tibia.

Legs.—Tarsi unspined. Metatarsus I almost straight, with three strong apical spines below but no other spines elsewhere, II also with three strong apical spines inferiorly, and in addition with two or three on the inner surface and two on the inferior surface posteriorly, III and IV numerous spined. Tibia I stout, with three apical spines, none of which are enlarged, also with six spines on the lower surface, of which one distally situated is specially long and stout; on the anterior surface there is a row of three spines. Tibia II with two or three apical spines inferiorly, three or four on the lower surface, and two or three on the anterior surface superiorly; III with three apical spines below, four on the inferior surface, two on the anterior surface, two dorsally, and two on the posterior surface above, all of them being elongated; IV spined like III except that the dorsal surface has one or no spines. Patella I without spines, II with one on the anterior surface near the apex, III with two on the anterior surface and one on the posterior surface, IV with one on the anterior and one on the posterior surface. Femora armed above with long setiform spines. Tarsi I and II scopulate to the base, the scopula being entire, though not dense, and composed of not very fine setæ; III and IV with a few scopular setæ, but mostly the setæ are long and subspiniform. Metatarsi I and II thinly scopulate from the apex to near the base. Inferior tarsal claw of anterior legs small but easily distinguishable.

Sternal sigilla.—Third elongated, slightly less than its own length distant from the sternal margin; second submarginal, first indistinct.

Measurements.—Total length 8·25 mm., of carapace 3 mm., width of carapace 2·1 mm.

Stasimopus steynsburgensis sp. nov.

This species is closely related to *S. palpiger* Poc. from Graaff Reinet and *S. schreineri* Purc. from Hanover. It differs from both in having shorter palps and in possessing a scopula on the tarsus of the fourth leg of the male.

The type is a single adult male in the collection of the British Museum from Steynsburg, C.C., taken by Miss Leppan.

Colour.—Upper surfaces blackish, excepting the tibia and tarsus of the palps and the tarsi and metatarsi of the legs, which are reddish yellow; also the patella and tibia of the fourth legs are brownish; sternum and coxæ of appendages inferiorly castaneous, abdomen fuscous, the lung opercula and genital sternite yellow, the spinners pale.

Carapace.—Subequal in length to the metatarsus of the fourth leg. The three keels well developed anteriorly, but absent posteriorly, none of them approaching the fovea; hairs are absent therefrom and from the ocular area; the sides of the cephalic area are practically smooth except immediately external to the lateral ridges. Anterior margins of anterior row of eyes distinctly procurved; distance between an anterior lateral and anterior median subequal to the diameter of the latter, but less than the long diameter of the former; posterior lateral almost as long as the anterior lateral, the distance between them about one and three-fifth times the length of the latter; outer lateral margin of anterior lateral about in a line with inner posterior margin of posterior lateral.

Pedipalps.—Stretched forwards, the apex reaches a point three-fifths of the distance along the metatarsus of the first leg. Patella longer than that of first leg, but much shorter than the tibia of that leg or of the palp. Tibia and tarsus together slightly shorter than the carapace. Process of palpal organ longer than the bulb, tapering and slightly twisted.

Legs.—Tarsus I absent from the specimen; II a little

swollen, scopulate below, anteriorly with six spines, posteriorly with seven or eight spines; III with about fourteen spines on each side, scopulate below; IV numerously spined on both sides and scopulate mesially below. Metatarsus I and II without trace of a scopula, but with no spines mesially below though strong spines occur on each side inferiorly. Tibia I shorter than the metatarsus, with only one or two spines mesially below and with about eight spines on the anterior side and four on the posterior side in addition to those at the apex; III with five to seven short spines on or near the distal edge on both anterior and posterior sides superiorly. Patella I with one spine at the apex inferiorly; III with an anterior band of short spines, about six to eight in number, but no distal patch of spinules superiorly; IV with a patch of minute spines extending over about two-thirds to three-quarters of the length of the anterior side. Anterior claw of fourth leg with two large teeth basally situated and with no small ones distal thereto; posterior claw with three large basal teeth.

Measurements.—Total length 18.5 mm., length of carapace 7.8 mm., breadth of carapace 7 mm., length of tibia of palp 4.2 mm., of metatarsus of palp 5.6 mm.

Stasimopus gigas sp. nov.

The type is a single male example in the collection of the British Museum labelled "Vredefort Rd.?, Barrett-Hamilton"; the specimen is in dried condition.

Colour.—Upper surfaces black, except the tarsi and metatarsi of the legs, the tibiae and tarsi of the palps, also the distal portions of the tibiae of the first two pairs of legs, and of the patellæ of the palps, all of which are reddish.

Carapace.—Subequal in length to the metatarsus of the fourth leg. The three keels are prominent throughout and reach back almost as far as the fovea. Anterior margins of anterior row of eyes in a very slightly procurved line, subequally spaced, the distance between the medians about one

and a half times the diameter of an eye; inner edges of anterior lateral and posterior median practically in the same line; distance between anterior and posterior laterals quite one and a half times that between an anterior lateral and anterior median.

Pedipalps.—Patella slightly longer than that of the first leg, shorter than the tibia of that leg or of the palp. Tibia and tarsus together considerably shorter than the carapace.

Legs.—All the tarsi scopulate below; no trace of a scopula on the metatarsi. Tarsus I with a single spine on its anterior side and four on the posterior side (II wanting in the specimen); III with numerous spines in a continuous band on both anterior and posterior sides; IV with numerous spines on both sides, especially anteriorly. Metatarsus I with strong spines below, both over the median area and at the sides. Tibia I considerably shorter than the metatarsus, with strong spines below and at the sides; III with a few short spines and spinules on or near the distal edge on both anterior and posterior sides superiorly. Patella I with two spines at the apex inferiorly and one on the lower surface; III with an anterior band of spines, but no distal patch of spinules above apart from those belonging to that band; IV with an anterior patch of spinules extending about three-fifths of the length of the anterior side. Paired claws of tarsus of fourth leg with a basal comb of four large teeth, distal to which is a very small tooth, and on the posterior claw one or two minute teeth occur on the proximal side of the comb.

Measurements.—Length of carapace 11.2 mm., breadth of same 10 mm., length of tibia of palp measured from above 7 mm., of patella of palp 5.5 mm., of first metatarsus 8.4 mm., of first tibia 7 mm., of first patella 5 mm., of fourth metatarsus 11.5 mm.

This species is distinct from *S. nigellus* *Poc.* (*Ann. Mag. Nat. Hist.*, 7, x, p. 319), which also seems to have been taken at Vredefort Rd. by the late Capt. Barrett-Hamilton, in the following characters: ocular arrangement, keeling of cara-

pace, spinulation of first metatarsus, third tarsus, third patella, in the dentition of the fourth claws, and lastly in size, this being by far the largest male yet recorded in this genus.

Stasimopus minor *sp. nov.*

The type is a single adult male from Bloemfontein collected by Dr. T. F. Dreyer in August, 1914. It was found on the open veld.

This may be identical with *S. oculatus* *Poc.*, which is based on a female example, or may belong to another species, for Dr. Dreyer has taken females of two species at Bloemfontein. It is probably closely related to *S. nigellus* *Poc.* taken at Vredefort Rd., but differs therefrom in the wide separation of the anterior median eyes.

Colour.—Jet-black above, the distal portions of the legs and of the palps paler; sternum, coxæ of appendages, genital plate, lung opercula, and spinners pale.

Carapace.—A little longer than tibia of first leg or metatarsus of palp. Almost quite smooth and shining in its anterior half, lightly sculptured (not coarsely rugose) in its posterior half. The three keels depressed, only the median one reaching back to the fovea. Anterior margins of anterior row of eyes in a straight line, the medians much nearer to the laterals than to each other, being about one and a half diameters apart; anterior laterals subequal in length to the anterior medians and separated therefrom by about half the diameter of a median. Ocular area sparsely hairy.

Pedipalps.—Pressed forwards, the tip reaches a point three-fifths of the distance along the metatarsus of the first leg; patella considerably longer than that of the first leg, but shorter than the tibia of that leg or of the palp; tibia and tarsus together subequal to the carapace in length.

Legs.—All the tarsi scopulate below, but no trace of a scopula on the metatarsi. Tarsus I with two or three spines on the anterior side, two or none on the posterior side; II with two anteriorly and two or three posteriorly; III with

one anteriorly and one or three posteriorly; IV with seven anteriorly and one posteriorly. Metatarsus I without strong spines on the mesial area below. Tibia I subequal in length to the metatarsus, with three spines below besides those at the apex, but none at the sides excepting one near the apex anteriorly; tibia III with about five short spines on or near the distal edge on both anterior and posterior sides superiorly. Patella I without spines below; III with a strip of six to nine weak spines on its anterior side, but no distal patch of spinules above. Patella IV with an anterior patch of spinules extending about three-fifths of the length of the anterior side. Paired tarsal claws of fourth leg each armed with two large basal teeth, with four smaller ones more distally situated on the posterior claw, but only three on the anterior claw, which are weaker than those on the posterior claw.

Measurements.—Total length 8.5 mm., length of carapace 4 mm., breadth of same 3.3 mm., length of palp 12 mm., of first leg 15 mm.

Stasimopus oculatus Poc.

Stasimopus oculatus Poc., Proc. Zool. Soc., 1897, p. 728, pl. xlii. fig. 2.

It has been pointed out to me by Dr. T. F. Dreyer that at least two species of *Stasimopus* occur at Bloemfontein, and Dr. Dreyer has kindly sent to me adult female material of the same.

S. oculatus, the larger species, can be distinguished through the presence of a cluster of spines at the apex of the third metatarsus inferiorly and the presence of stout spinules at the apex of the tibia of the palp superiorly, whereas the smaller species has neither of these characters; there is also a difference in coloration, the smaller species having the abdomen fairly uniformly infuscated above, whilst *oculatus* has the lateral surface of the abdomen and most of the dorsal surface comparatively pale but with a dark mesial blotch anteriorly and some infuscation over the posterior part of the dorsal surface.

Female specimens which seem to be identical with *oculatus* are known to me from Reddersburg (Dr. Broom), Ladybrand (Dr. Dreyer), and Kimberley (Bro. J. H. Power).

Female specimens which are identical with or very closely related to the smaller Bloemfontein species are known to me from Vredefort Rd. (Capt. Barrett-Hamilton), Valsch River near Kroonstad (Prof. H. H. W. Pearson), and Winburg (Miss S. Brown).

A third form characterised by the possession of short stout spinules at the apex of the tibia of the palp but no spines at the apex of the third metatarsus occurs at Kroonstad (Dr. T. F. Dreyer).

A fourth form from Jagersfontein (M. Francis) has a group of stout spines at the apex of the third metatarsus, but no stout spinules at the apex of the tibia of the palp.

Lastly, we have a good series of female specimens from Modder River (Bro. J. H. Power) which seems referable to two species, all the small and immature examples agreeing with *oculatus*, and all the larger ones being similar to the smaller Bloemfontein species in structure, but very much larger than that form; in this case it seems just possible that the small specimens from Modder River are merely the young of the larger ones.¹

Unfortunately we possess no evidence which can serve to connect any of these forms with the species based on male material. Only four male *Stasimopi* are known from the Free State, viz. the type of *S. nigellus* *Poc.* from Vredefort Rd., the type and a co-type of *S. gigas* *sp. nov.* also from Vredefort Rd., and the type of *S. minor* *sp. nov.* from Bloemfontein.

According to Dr. Dreyer, the nests of the two Bloemfontein species are very distinct; the female of *oculatus* makes a D-shaped lid, whilst the other species has a more circular lid; the tube of the nest in *oculatus* is very thickly lined

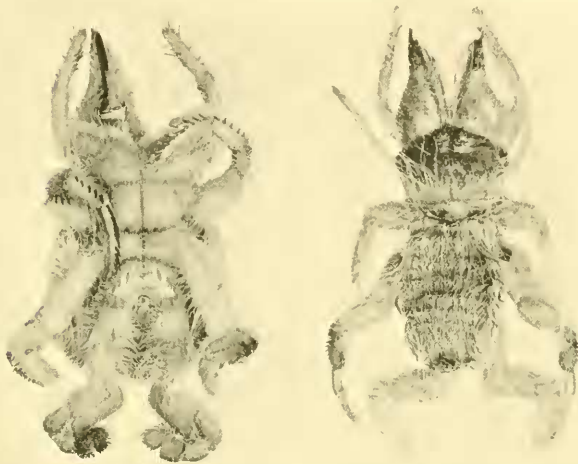
¹ Some of the forms just mentioned will be described by me as new species in 'Records Albany Museum,' vol. iii, pt. ii.

by felt-like silk, forming a much thicker wall than that found in the other species. In a large specimen the longest diameter of the lid of *oculatus* reaches 50 mm., the greatest outside diameter of the tube at the top being 60 mm.

Order SOLIFUGÆ.

Chelypus hirsti *sp. nov.* Text-figs. 8, 9.

TEXT-FIG. 8.



Chelypus hirsti *sp. nov.*

Specimen on left is minus the left chelicera, and is shown in ventral view; specimen on right is in dorsal view. $\times \frac{5}{3}$.

The types consist of four male examples in the Albany Museum collection, two of which came from Rietfontein, Gordonia, presented by Mr. H. Drew, and two are indefinitely located as North-West Gordonia, presented by Mr. C. A. Anderson. Female unknown.

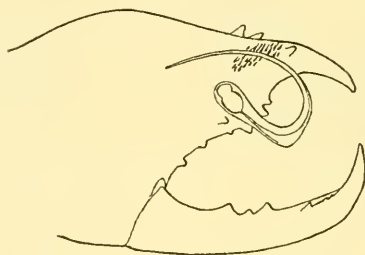
This species is closely related to *C. barberi*¹ *Purcell*, but differs therefrom as follows.

¹ Purcell, W. F., 'Annals S. Afr. Mus.' vol. ii, p. 224, 1901.

Flagellum.—Not bifid at the apex, but tapering to a point. Near its base the shaft has a ventral, compressed, and keel-like extension along the greater part of the length of its procurrent portion.

Chelicerae.—Upper finger furnished internally with numerous short stout spines, occupying an elongated obliquely arranged area extending from the neighbourhood of the large basal tubercle on the inner side of the fang to a point near the basal enlargement of the flagellum. Outer row of teeth in the upper jaw comprising six teeth, the fourth one being

TEXT-FIG. 9.

*Chelypus hirsti* sp. nov.

Left chelicera of male viewed from inner side. $\times 4$.

minute. Upper surface of chelicerae covered with small granules, a few of which are spinuliform.

Pedipalps.—The upper surface of the tibia is only finely granulated, and in its basal third is almost free of granules; there is some fine granulation and one or two coarse granules at the base of the metatarsus above.

Colour.—Chelicerae without dark marks at the base above. Cephalothorax infuscated over its anterior half.

Total Length.—27 mm.

This species is named after Mr. A. S. Hirst, who has made important contributions to our knowledge of Arachnida and has described various S. African species.

Order SCORPIONES.

Opisthophthalmus pugnax Thorell, var. natalensis
var. nov.

The types of this variety are two adult specimens, male and female, from Estcourt, Natal, collected by Mrs. E. J. Turner and by Mr. Guy Marshall respectively, who presented them to the British Museum. The Natal Museum has a female example, a trifle larger than the type, from Mooi River, Natal, collected by Mr. C. James.

The variety agrees with the typical form of *pugnax*, as known to me through material from Pretoria, in colour and general structure, but differs as follows.

No stridulatory lamellæ on the chelicerae.

Median eyes more posteriorly situated, their distance from the hind end of the carapace being less than one-third of the total length of the carapace (more than one-third in typical *pugnax*).

Hands much less coarsely granulated, that of the male on its inner portion superiorly being covered with numerous quite small and isolated round granules, the finger keel with one or two coarse pits in its course, but practically continuous throughout, the more external secondary keel quite obsolete and the inner one, for the greater portion of its length, only represented by infuscated scarcely enlarged granules, the outer surface of the hand with only one keel; that of the female without coarse granulation on the inner part of its upper surface, except quite near the finger, but covered with a much flattened meshwork of more or less coalesced ridges and granules in which the secondary keels are quite absent, the whole surface appearing much smoother than in the typical form, the finger keel well defined, continuous in the distal half, more or less broken in the basal half (in the Mooi River example it is continuous almost throughout).

Hand of male slightly narrower in proportion to the length of the hand back than in *pugnax*, and the fingers a little longer.

The granules on the mesial portion of the last abdominal sternite of the male more numerous and not quite so large as in the male of *pugnax* proper (about ten or twelve rows can be roughly counted between the anterior and posterior margins); in the female this area is covered with low granules and irregularly shaped ridges, which occur throughout the whole length of the segment, more or less obscuring the keels (these are quite obsolete in the Estcourt specimen, but present, though indistinct, in the Mooi River specimen).

Infero-median keels of first caudal segment in the male composed of about eight to ten coarse granules, and the space between them also includes about ten coarse granules, but is not obliterated thereby nor are the crests rendered indistinct to any great extent; in the female these keels are pitted and more or less coarsely granular (in the Mooi River specimen the keels are not definitely broken up into coarse granules), with a few granules between the keels.

The abdominal tergites in the female are all granular throughout, coarsely so in the posterior portions of each tergite.

Pectinal teeth: Thirteen to fourteen male, eleven to twelve female (thirteen to fourteen in the Mooi River specimen).

Measurements.—Total length, male 78 mm., female 89 mm.; length of hand, male 17.3 mm., female 18.8 mm.; of movable finger, male 11.75 mm., female 12.3 mm.; of hand back, male 6 mm., female 7 mm.; breadth of hand, male 8 mm., female 10.5 mm.; length of carapace, male 11.7 mm., female 13 mm.; distance of median eyes from posterior margin, male 3.75 mm., female 3.7 mm.; width of first caudal segment, male 5.75 mm.; of fifth caudal segment, male 4.25 mm.; length of same measured along the side 10 mm.; breadth of vesicle, male 4.25 mm.; length of same 10 mm.

In respect to the shape of the hand and the granulation of the last abdominal sternite and of the infero-median keels of the first caudal segment in the male, this form is intermediate between typical *pugnax* and the form described by me from Keilands under the name of *O. latimanus* *Koch* var.

keilandsi.¹ It resembles that form also in the posterior position of the median eyes; it differs in that the tail of the male is much stouter in *natalensis*. The fifth caudal segment in an adult male of *keilandsi* measures 10·5 mm. in length and 3·75 mm. in width.

Dr. Purcell² points out in his important monograph on the genus *Opisthophthalmus* that the presence or absence of stridulatory lamellæ on the chelicerae is usually of no specific value. However, I am inclined to regard the character of some importance in the various forms which range around and between *pugnax* and *latimanus*. Such lamellæ are present in all our examples of *latimanus*, 132 specimens of all sizes, from Grahamstown, Highlands, Brakkloof, Fort Beaufort, Jansenville, Schnurftenberg, Alicedale, Glen Lynden, Mimosa, Redhouse, Alexandria, and Queenstown; they are even present as a row of bristles on the newly hatched young. They are present in *latimanus* var. *ansteroides mihi* and in every specimen of our series of typical *pugnax*; they are completely absent in *keilandsi*.

It is not improbable that intermediates between *keilandsi* and *natalensis* will be found, in which case it will no longer be possible to maintain *pugnax* as a species distinct from *latimanus*. With the discovery of new local forms in the genus *Opisthophthalmus* the differences between the so-called species are gradually breaking down and the genus is seen to be composed of numerous local forms which more or less completely grade into each other.

¹ 'Records, Albany Museum,' vol. iii, p. 7, 1914.

² 'Annals S. Afr. Museum,' vol. i, p. 134, 1899.